

REMARKS

The indication of allowable subject matter in claims 6, 7 and 9-14 is acknowledged and appreciated. In view of the following remarks, it is respectfully submitted that all claims are in condition for allowance.

Claim 4 stands rejected under 35 U.S.C. § 112, second paragraph. It is respectfully submitted that the enclosed amendment obviates the alleged indefiniteness. Accordingly, it is respectfully requested that this rejection be withdrawn.

Independent claims 1 and 5 stand rejected under 35 U.S.C. § 102 as being anticipated by JP '687. This rejection is respectfully traversed for the following reasons.

Claim 1 recites in pertinent part, "the semiconductor laser comprising, between the substrate and the n-type semiconductor layer, a semiconductor layer having a low dislocation region with a threading dislocation density of not more than $5E8\text{ cm}^{-2}$." Claim 5 similarly recites in pertinent part, "forming on a substrate a semiconductor layer having a low dislocation region with a threading dislocation density of not more than $5E8\text{ cm}^{-2}$." Support for this feature can be found, for example, in Figs. 17 and 18 and the corresponding disclosure in Applicants' specification. With respect to the phrase "not more than $5E8\text{ cm}^{-2}$," it is noted that said corresponding disclosure in Applicants' specification discloses " $5E8\text{ cm}^{-2}$ " and further discloses the preferred embodiment for a reduction of the dislocation density. Accordingly, it is respectfully submitted that one of ordinary skill in the art would readily recognize Applicants' disclosure of the reduction of the dislocation density as not more than $5E8\text{ cm}^{-2}$. According to one aspect of the present invention, such a combination as claimed can enable a long lifetime for the semiconductor laser.

JP '687, on the other hand, is completely silent as to the aforementioned feature, let alone disclose it in the specific *combination* of features including the intermediate layer recited in claims 1 and 5. New claims 18 and 21 recite a similar feature as discussed above regarding claims 1 and 5, respectively, and are therefore submitted to be patentable for at least the same reasons.

Claims 22 and 23 each embody an intermediate layer composed of InGaN. In direct contrast, the alleged intermediate layer 16 of JP '687 is GaN. Indeed, such a feature can enable the capability to improve crystallinity and prolong lifetime of the laser. Only Applicants have recognized and considered such an effect, and conceived of a novel *combination* to realize said effect. The cited prior art does not appear to disclose such an effect, let alone suggest using InGaN as the intermediate layer in the particular arrangement set forth in the claimed *combination*.

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed, either expressly or inherently (noting that "inherency may not be established by probabilities or possibilities", *Scaltech Inc. v. Retec/Tetra*, 178 F.3d 1378 (Fed. Cir. 1999)), in a single prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986), based on the forgoing, it is submitted that JP '687 does not anticipate the independent claims, nor any claim dependent thereon.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as the independent claims are patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are

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also patentable. In addition, it is respectfully submitted that the dependent claims are patentable based on their own merits by adding novel and non-obvious features to the combination.

Based on the foregoing, it is respectfully submitted that all pending claims are patentable over the cited prior art. Accordingly, it is respectfully requested that the rejection under 35 U.S.C. § 102 be withdrawn.

CONCLUSION

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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